CLAIMS

1. A color forming composition, comprising:

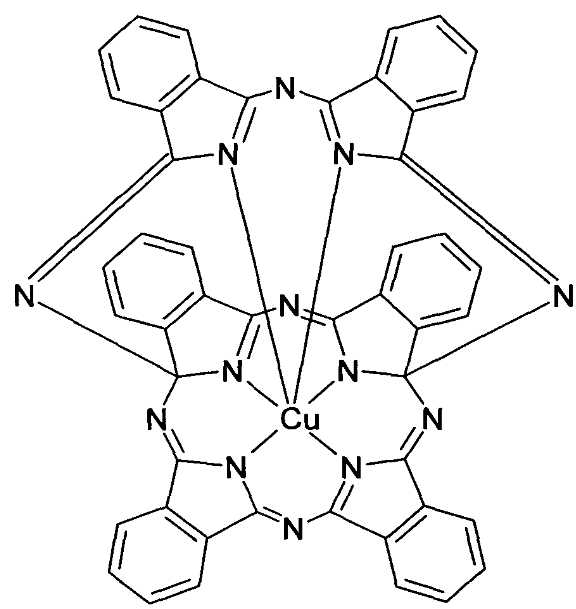
a) a dye precursor composition including a phthalocyanine precursor and a binder; and

b) an infrared absorber admixed with or in thermal contact with the dye precursor composition,

said color forming composition being configured for development in less than about 1 msec.

2. The composition of claim 1, wherein the phthalocyanine precursor includes a phthalocyanine and a leaving group both coordinated to a metal.

3. The composition of claim 2, wherein the phthalocyanine precursor includes the following structure



4. The composition of claim 1, wherein the phthalocyanine precursor comprises a 1,3-diiminoisoindoline and a metal donor.

5. The composition of claim 4, wherein said 1,3-diiminoisoindoline is a member selected from the group consisting of 1,3-diiminoisoindoline, 5-phenyl-1,3-diiminoisoindoline, 5-methoxy-1,3-diiminoisoindoline, and 4-aza-1,3-diiminoisoindoline and said metal donor is a metal complex of hydroxyethyl sarcosine.

6. The composition of claim 1, wherein the infrared absorber is selected from the group consisting of polymethine dyes, polymethyl indolium dyes, metal complex IR dyes, cyanine dyes, indocyanine green, squarylium dyes, chalcogenopyryloarylidene dyes, croconium dyes, metal thiolate dyes, bis(chalcogenopyrylo)polymethine dyes, oxyindolizine dyes, bis(aminoaryl)polymethine dyes, merocyanine dyes, indolizine dyes, pyrylium dyes, quinoid dyes, and mixtures thereof.

7. The composition of claim 6, wherein the infrared absorber is a polymethyl indolium dye, said polymethyl indolium dye being 2-[2-[2-chloro-3-[2-(1,3-dihydro-1,3,3-trimethyl-2*H*-indol-2-ylidene)-ethylidene]-1-cyclopenten-1-yl-ethenyl]-1,3,3-trimethyl-3*H*-indolium perchlorate.

8. The composition of claim 1, wherein the color forming composition is optimized for development using infrared radiation having a wavelength of from about 760 nm to less than 850 nm.

9. The composition of claim 1, wherein color forming composition is optimized for development in from about 100 μsec to about 500 μsec.

10. The composition of claim 1, wherein the binder is selected from the group consisting of cellulose acetate butyrate, ethyl acetate butyrate, polymethyl methacrylate, polyvinyl butyral, and mixtures thereof.

11. The composition of claim 10, wherein the binder is ethyl acetate butyrate.

12. The composition of claim 1, further comprising a reducing agent admixed with the dye precursor.

13. The composition of claim 12, wherein the reducing agent is a member selected from the group consisting of hydroquinone, phenidone, ascorbic acid, hydrazine, formamide, formic acid, and mixtures thereof.

14. The composition of claim 13, wherein the reducing agent is hydroquinone.

15. The composition of claim 1, wherein the color forming composition is spin-coatable.

16. A color forming composition, comprising:

a) a dye precursor composition including a phthalocyanine precursor and a binder, said phthalocyanine precursor including a phthalocyanine and a leaving group both coordinated to a metal; and

b) an infrared absorber admixed with or in thermal contact with the dye precursor composition.

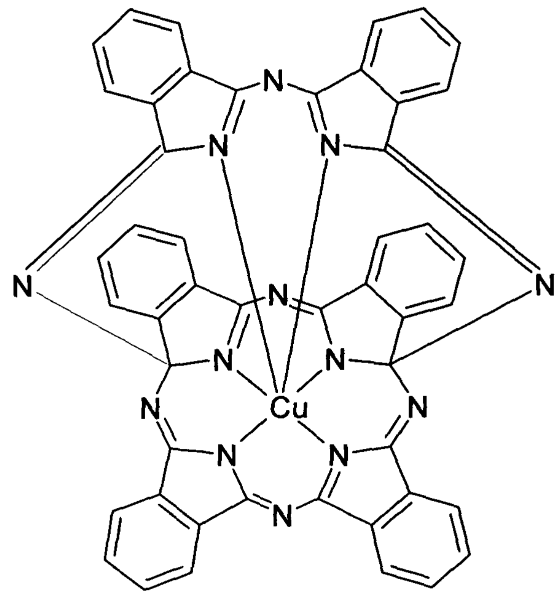
17. An optical disk, comprising an optical disk substrate having a color forming composition coated thereon, said color forming composition including:

a) a dye precursor composition including a phthalocyanine precursor and a binder; and

b) an infrared absorber admixed with or in thermal contact with the dye precursor composition.

18. The optical disk of claim 17, wherein the phthalocyanine precursor includes a phthalocyanine and a leaving group both coordinated to a metal.

19. The optical disk of claim 18, wherein the phthalocyanine precursor includes the following structure



20. The optical disk of claim 17, wherein the infrared absorber is selected from the group consisting of polymethine dyes, polymethyl indolium dyes, metal complex IR dyes, cyanine dyes, indocyanine green, squarylium dyes, chalcogenopyryloarylidene dyes, croconium dyes, metal thiolate dyes, bis(chalcogenopyrylo)polymethine dyes, oxyindolizine dyes, bis(aminoaryl)polymethine dyes, merocyanine dyes, indolizine dyes, pyrylium dyes, quinoid dyes, and mixtures thereof.

21. The optical disk of claim 20, wherein the infrared absorber is 2-[2-[2-chloro-3-[2-(1,3-dihydro-1,3,3-trimethyl-2*H*-indol-2-ylidene)-ethylidene]-1-cyclopenten-1-yl-ethenyl]-1,3,3-trimethyl-3*H*-indolium perchlorate.

22. The optical disk of claim 17, wherein the infrared radiation absorber is in thermal contact with the phthalocyanine precursor.

23. The optical disk of claim 17, wherein said binder is an ethyl acetate butyrate.

24. The optical disk of claim 17, wherein said color forming composition is optimized for development using infrared radiation having a wavelength of from about 760 nm to about 800 nm.

25. The optical disk of claim 17, further comprising a stabilizing agent admixed with or layered over the color forming composition.

26. A method of forming color images on a substrate, comprising:

a) applying a color forming composition onto a substrate, said color forming composition being a mixture including:

i) a dye precursor composition including a phthalocyanine precursor and a binder; and

ii) an infrared absorber admixed with or in thermal contact with the dye precursor composition,

said color forming composition being configured for development in less than 1 msec; and

b) applying infrared radiation to the color forming composition sufficient to cause reduction of the phthalocyanine precursor to form a phthalocyanine dye without decomposing the color forming composition.

27. The method of claim 26, wherein the energy is applied at from about 0.3 to about 0.5 J/cm^2.

28. The method of claim 26, wherein the energy is applied for about 100 to about 500 microseconds.

29. The method of claim 26, wherein the energy is applied using an infrared laser having a wavelength of about 780 nm.

30. The method of claim 26, wherein the phthalocyanine precursor includes a phthalocyanine and a leaving group both coordinated to a metal.

31. The method of claim 26, wherein the infrared absorber is a member selected from the group consisting of polymethine dyes, polymethyl indolium dyes, metal complex IR dyes, cyanine dyes, indocyanine green, squarylium dyes, chalcogenopyryloarylidene dyes, croconium dyes, metal thiolate dyes, bis(chalcogenopyrylo)polymethine dyes, oxyindolizine dyes, bis(aminoaryl)polymethine dyes, merocyanine dyes, indolizine dyes, pyrylium dyes, quinoid dyes, and mixtures thereof.

32. The method of claim 26, wherein the substrate is an optical disk.

33. A system for labeling a substrate, comprising:

a) an image data source;

b) an optical disk substrate having a color forming composition coated thereon, said color forming composition comprising:

i) a dye precursor composition including a phthalocyanine precursor and a binder; and

ii) an infrared absorber admixed with or in thermal contact with the dye precursor composition; and

c) an infrared radiation source operatively connected to the image data source and configured to direct infrared radiation having a wavelength of from about 760 nm to less than 800 nm to the color forming composition.

34. The system of claim 33, wherein the phthalocyanine precursor includes a phthalocyanine and a leaving group both coordinated to a metal.

35. The system of claim 33, wherein the infrared absorber is a member selected from the group consisting of polymethine dyes, polymethyl indolium dyes, metal complex IR dyes, cyanine dyes, indocyanine green, squarylium dyes, chalcogenopyryloarylidene dyes, croconium dyes, metal thiolate dyes, bis(chalcogenopyrylo)polymethine dyes, oxyindolizine dyes,

bis(aminoaryl)polymethine dyes, merocyanine dyes, indolizine dyes, pyrylium dyes, quinoid dyes, and mixtures thereof.

36. The system of claim 33, wherein the infrared radiation source produces radiation having a spot size from about 10 to about 60 μm.

37. The system of claim 33, wherein the infrared radiation source produces radiation at a power level from about 30 mW and about 50 mW.

38. The system of claim 33, wherein the substrate is an optical disk.